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United States Department of Agriculture

BUREAU OF AGRICULTURAL ECONOMICS

SERVICE AND REGULATORY ANNOUNCEMENTS NO. 139

UNITED STATES STANDARDS FOR GRADES OF CANNED CORN—CREAM STYLE

(Approved November 22, 1932)

DEPARTMENT OF AGRICULTURE,
Washington, D. C.

By virtue of the authority vested in the Secretary of Agriculture by the provision in the act of Congress entitled "An act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1933, and for other purposes" (Public, No. 269, 72d Cong.), approved July 7, 1932, authorizing an inspection service for farm products, I, R. W. Dunlap, Acting Secretary of Agriculture, do prescribe and promulgate the following standards for grades of canned cream-style corn, to be in force and effect on and after December 1, 1932, and as long as Congress shall provide the necessary authority therefor, unless amended or superseded by standards hereafter prescribed and promulgated under such authority. These standards shall supersede all standards for canned cream-style corn previously promulgated.

In testimony whereof I have hereunto set my hand and caused the official seal of the Department of Agriculture to be affixed in the city of Washington this 22d day of November 1932.



R. W. Dunlap

Acting Secretary.

DEFINITION

Canned corn is the canned vegetable prepared from the immature grain of sweet corn (*Zea mays* L.) with or without the addition of salt and/or sugar, with the addition of such quantities of potable water as may be necessary in the proper preparation of the product, packed in hermetically sealed containers, and sterilized by heat.

STYLES OF CANNED CORN

Cream-Style canned corn is canned sweet corn prepared from corn removed from the cob by shallow cutting through the grain and subsequent scraping, causing it to have a creamy consistency.

Whole-Grain Style canned corn is canned sweet corn prepared from corn removed from the cob by cutting in such a manner as to leave the grain substantially whole. The grains are surrounded by brine, except when "vacuum packed."

GRADES OF CREAM-STYLE CANNED CORN

U. S. Grade A (fancy) canned corn is the product prepared from young, tender sweet corn which possesses similar varietal characteristics. The color of the product is bright and the product possesses a heavy creamlike consistency. It is practically free from defects such as silks, husks, particles of cob, off-colored kernels, etc. The kernels have been neatly and uniformly severed from the cob and are of such a degree of maturity that they are very tender and are in the early cream stage. The product possesses a flavor typical of succulent young corn, and scores not less than 90 points when scored according to the scoring system outlined herein.

U. S. Grade B (extra standard or choice) canned corn is the product prepared from tender sweet corn which possesses similar varietal characteristics. The color of the product is reasonably bright and the product possesses a creamlike consistency. It is reasonably free from defects such as silks, husks, particles of

cob, off-colored kernels, etc. The kernels have been severed at a reasonably uniform distance from the cob and are of such a degree of maturity that they are tender and in the cream stage. The product possesses a good flavor, and scores not less than 75 points and need not score more than 89 points when scored according to the scoring system outlined herein.

U. S. Grade C (standard) canned corn is the product prepared from reasonably tender sweet corn which possesses similar varietal characteristics. The color may be dull and the product may possess a consistency showing a slight separation of free liquor, or contrariwise, an insufficiency of moisture. The product is fairly free from defects such as silks, husks, particles of cob, off-colored kernels, etc. The kernels may be lacking somewhat in uniformity of size and they are of such a degree of maturity that they may be in, but have not passed, the dough stage. The product possesses a palatable flavor, and scores not less than 60 points and need not score more than 74 points when scored according to the scoring system outlined herein.

Off-Grade (substandard) canned corn is canned sweet corn which scores less than 60 points when scored according to the scoring system outlined herein, or, when any one of the grading factors, with the exception of cut, falls in the subdivision D.

PREREQUISITES TO GRADING

CONDITION OF CONTAINER

Containers shall be sound and clean. If the containers are metal, they shall be free from rust and serious dents, and the ends shall be flat or concave.

CONDITION OF PACKAGE AND LABEL

If cased, the canned corn shall be packed in clean, neat, unbroken packages. If labeled, the labels on the container and package shall be clean and shall be neatly and securely affixed, and shall comply in all respects with the requirements of the Federal food and drugs act.

FILL OF CONTAINER

Cans of corn will be considered as of standard fill if the head space, measured from the top of the product to the underside of the lid, does not exceed 10 per cent of the total inside height of the container, and if the packing medium is not in excess of the quantity necessary for proper processing without impairment of quality.

A certificate of grade covering canned corn that does not meet the above requirements shall bear the legend,

"Below U. S. Standard"

"Slack Fill"

A certificate of grade covering canned corn that does not meet the above requirement in that the packing medium is excessive, whether or not the head space is excessive, shall bear at least the 2-line legend,

"Below U. S. Standard—Slack Fill"

"Contains Excess Added Liquid"

The maximum head space allowable in the sizes commonly used in packing cream-style corn is shown in the accompanying table:

Can size	Can dimensions (in inches)		Maximum capacity in water at 68° F. (in ounces)	Maximum head space allowable (measured from top of double seam in six- teenths of an inch)
	Diameter	Height		
No. 1 (picnic).....	2 $\frac{1}{16}$	4	10.94	8.8
No. 2.....	3 $\frac{1}{16}$	4 $\frac{1}{16}$	20.55	9.7
No. 2 $\frac{1}{2}$	4 $\frac{1}{16}$	4 $\frac{1}{16}$	29.79	9.9
No. 10.....	6 $\frac{1}{16}$	7	109.43	13.6

ASCERTAINING THE GRADE

The grades of cream-style canned corn may be ascertained by considering the following factors: Color, consistency, absence of defects, cut, maturity, and flavor. The relative importance of each element has been expressed numerically on a scale of 100. The maximum number of credits which may be given for each factor is:

	Points
I. Color.....	5
II. Consistency.....	25
III. Absence of defects.....	20
IV. Cut.....	5
V. Maturity.....	25
VI. Flavor.....	20
Total.....	100

ASCERTAINING THE RATING OF EACH FACTOR

The essential variations within each factor are so described that the value may be ascertained for each factor and expressed numerically. The numerical ranges within each factor are inclusive. For instance, the range 12 to 14 means 12, 13, and 14.

I. Color.

- (A) To receive the full credit of 5 points for color, canned corn must be bright and true to the color of the type or variety claimed for the corn.
- (B) If a slight deviation from the natural color is found, a credit of 4 points may be allowed.
- (C) Corn that is dull or of poor color may receive not to exceed 3 points credit. Corn of poor color, or that falls in this classification, shall not be graded above U. S. Grade C, or standard, regardless of the total score for the product.
- (D) Corn having a decidedly "off" color or distinctly bad color, regardless of the reason for the inferiority, may not be scored more than 2 points.

II. Consistency.—The term consistency has reference to the density and viscosity of the product.

- (A) To receive a rating within the highest group, 22 to 25 points, for this factor, the product must have a heavy creamlike consistency. Corn of this consistency when poured into a grading tray will mound to some extent.
- (B) If the corn may be said to have a good creamy consistency—that is, when emptied from the can, if it flows just enough to level itself readily—a credit of 19 to 21 points may be allowed.
- (C) If the product shows a slight separation of free liquor, or on the other hand, when it is deficient in moisture to the extent that the product when poured from the can possesses a semiliquid or jellified form, a credit of 16 to 18 points may be allowed.
- (D) Credit ranging from 0 to 15 points is permissible when the product is thin and watery, or contrariwise, extremely dry, pasty, or crumbly.

III. Absence of Defects.—The factor relating to defects deals principally with workmanship, having reference to the degree of freedom from objectionable substances such as silks, husks, particles of cob, hard kernels, worm-eaten kernels, can black, discolored kernels, and rust. The presence of "pulled kernels"—that is, kernels that have not been severed from the cob by cutting—is to be taken into consideration.

- (A) The highest rating, 19 to 20 points, for this factor, may be given only when the corn is practically free from such defects.
- (B) If but an occasional defect is detected, 16 to 18 points may be allowed.
- (C) If the defects are not of sufficient importance to detract from the appearance of the product or materially lessen its edible value, 13 to 15 points may be allowed.
- (D) When the defects are prominent, a credit of 0 to 12 points may be allowed.

IV. **Cut.**—The factor of cut relates to the character of cut; that is, the effect of the cut on the appearance of the product.

- (A) If the corn appears to have been evenly severed from the cob (close to the cob but including none of the cob tissues), a credit of 5 points may be allowed.
- (B) If the cut is lacking somewhat in the above uniformity, a credit of 3 to 4 points may be allowed.
- (C) If the cut is poor, having an irregular or ragged effect, only 1 to 2 points shall be allowed.
- (D) If the cut is very irregular, no credit is allowable.

V. **Maturity.**—Credits for the factor of maturity shall be based on the degree of tenderness or the starchiness of the corn.

- (A) To receive a rating within the highest group, 22 to 25 points, the kernels must be well developed but very tender, in what may be termed the early cream stage, but not so young that the product possesses a somewhat curdled appearance.
- (B) Tender corn in the cream stage may be credited within the range of 19 to 21 points.
- (C) If the kernels of corn are firm and are entering or in, but have not passed, the dough stage, a credit of 16 to 18 points may be allowed. Corn scoring in this classification shall not be graded above U. S. Grade C, or standard, regardless of the total score for the product.
- (D) Corn that is tough and past the dough stage, or that is so young that the product possesses a curdled appearance, may be given from 0 to 15 points for this factor.

VI. **Flavor.**—The quality of flavor of canned corn shall be classified from the standpoint of palatability. The natural flavor of the corn is to be given primary consideration, regardless of the addition of, or absence of, sugar and/or salt, except as provided in paragraph D below.

- (A) Corn that has a typical, distinctly young, tender, corn flavor is entitled to the highest rating, 17 to 20 points, for this factor.
- (B) Corn that has a good flavor, but with the young corn flavor not so distinct, may be given a rating within the range of 14 to 16 points.
- (C) If the flavor is considered fair, but palatable, or possesses, for instance, a somewhat matured mealy taste, only 11 to 13 points may be allowed.
- (D) If the flavor is decidedly poor, musty, or scorched, or if the product has been excessively salted or sweetened, from 0 to 10 points may be allowed.

Certificate No. _____ U. S. DEPARTMENT OF AGRICULTURE
 Lot or ear No. _____ Bureau of Agricultural Economics
 Number and size of cases in lot. _____ SCORE SHEET FOR CREAM-STYLE CANNED CORN
 Applicant _____
 Address _____
 Samples submitted by _____

Can mark.....	Label.....	Net weight.....	Vacuum.....	Factors	Maximum score	Points allowable												
I. Color.....					5	(A) 5 (B) 4 (C) 3 (D) 0-2												
II. Consistency.....					25	(A) 22-25 (B) 19-21 (C) 16-18 (D) 0-15												
III. Absence of defects.....					20	(A) 19-20 (B) 16-18 (C) 13-15 (D) 0-12												
IV. Cut.....					5	(A) 5 (B) 3-4 (C) 1-2 (D) 0												
V. Maturity.....					25	(A) 22-25 (B) 19-21 (C) 16-18 (D) 0-15												
VI. Flavor.....					20	(A) 17-20 (B) 14-16 (C) 11-13 (D) 0-10												
Total score.....					100													
Grade.....																		

Remarks.....

Graded by.....

Date.....

Fee \$.....





